

Lab 7 - Requirements analysis

Friday, April 17, 2020 11:34 AM

Hardware Requirements:

- MX7 Board
- LCD Display (PMOD)
- TMP3 Module (PMOD)
- RS-232 Module (PMOD)
- UART Cross-over cable
- 8 LED Module (PMOD)

I/O Requirements:

- Inputs:
 - 3 Buttons on MX7
 - TMP3 - Temperature
- Outputs:
 - LCD Display
 - Terminal
 - 8 LEDs

Functional Requirements:

1. Select input power using 3 buttons - individually or in combination - range 0..7
2. Display output power level on LEDs and LCD display
LCD Displays: POWER LEVEL X
LEDs Display power level: 0..7 LED lit
3. Measure ambient temperature using TMP3 module - convert to °F
4. Display temperature on terminal
5. If ambient temperature ≥ 80 °F
 - Flash message on LCD display - Overheated
 - Transmit message to terminal - Overheated follow with CR & LF
 - Turn off all LEDs, even if buttons are pressed
6. When ambient temperature lowers to < 80 °F, return to normal operation